UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/410,974	10/01/1999	ANDREW M. JONES	99-TK-252	7705

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EXAMINER
PHILPOTT, JUSTIN M

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _07 May 2003_ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-20_ is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-20_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _07 May 2003_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

     If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some *   c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____ .

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

     a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)	4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5)☐ Notice of Informal Patent Application (PTO-152)
3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6)☐ Other: .

DETAILED ACTION

Response to Amendment

1.   In the Amendment filed May 7, 2003, Applicant has submitted a substitute specification

to correct typographical errors, submitted formal drawings to correct label inconsistencies and

improve clarity, amended the title to more particularly describe the invention, and amended

claims 2, 6 and 14 to correct typographical errors and provide proper antecedent basis. In view

of the amendment, the drawings and claims 2 and 6 are no longer objected to, and the rejection

of claim 14 under 35 U.S.C. 112, second paragraph is withdrawn. The specification, however, is

additionally objected to in the following office action for minor informalities.

Response to Arguments

2.   Applicant's arguments, see page 11, filed May 7, 2003, with respect to the rejection(s) of

claim(s) 1-20 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore,

the rejection has been withdrawn. However, upon further consideration, a new ground(s) of

rejection is made in view of the previously cited art of Carson, Katzman and Circello.

Specification

3.   The disclosure is objected to because of the following informalities: it appears that

reference to Figure 3 in paragraph 0027 as amended, "(e.g., module M4 in Figure 3)" and "(e.g.,

modules M1 and M2 in Fig. 3)", should be changed to Figure 1A and/or Figure 1B because

Figure 3 does not include any of the recited modules. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claims 1, 3, 4, 7, 9, 10, 13, 14, 16, 17 and 19 are rejected under 35 U.S.C. 103(a) as

being unpatentable over U.S. Patent No. 5,283,904 to Carson et al.

Regarding claims 1, 7 and 9, Carson teaches a plurality of functional modules (e.g.,

MPIC 104 in FIG. 2, see also col. 4, line 13 – col. 18, line 35) interconnected via a packet router

(e.g., MPIC I/O unit 102), each functional module having packet handling circuitry (e.g.,

circuitry in FIG. 5 comprising MPIC bus send/receive & arbitration 226) for generating and

receiving packets conveyed by the packet router; wherein at least a first set of the functional

modules, acting as initiator modules, have packet handling circuitry which includes request

packet generation circuitry for generating request packets (e.g., interrupt request, see col. 5, lines

17-54, specifically lines 44-45) for implementing transactions, each request packet including a

destination indicator (e.g., destination, see FIG. 7 and col. 8, line 40 – col. 14, line 63)

identifying a destination of the packet and an operation field (e.g., bits 0-17 in FIG. 7) denoting

the function to be implemented by the request packet, wherein the operation field comprises a

number of bits (0-19) of which a packet type bit (e.g., trigger mode) denotes the type of packet,

three operation family bits denote the function (e.g., delivery mode) to be implemented by the

packet and two operation qualifier bits (e.g., remote read status) act to qualify the function.

While Carson may not specifically disclose exactly eight bits in the operation field, exactly four operation family bits and exactly three operation qualifier bits, it is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on Appellant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to utilize a specific other number of bits in Carson, since it is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value.

Regarding claims 3, 13, 17 and 19, Carson teaches the function in each request packet is a memory access operation including cache operations (e.g., see col. 5, lines 46-50).

Regarding claims 4, 10 and 14, Carson further teaches a physical mode (e.g., see col. 5, line 60 – col. 6, line 6) wherein a unique 8-bit MPIC-ID selects a single destination (i.e., primitive access) or a broadcast to all MPICs (i.e., compound access).

Regarding claim 16, while Carson may not specifically disclose memory access operations include load, store, read-modify-write and swap operations, it is well known in the art that such operations are commonly-performed memory operations. Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art for the memory access

operations of Carson to include load, store, read-modify-write and swap operations since it is

well known in the art that such operations are commonly-performed memory operations.

6.   Claims 2, 6, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Carson in view of U.S. Patent No. 4,807,116 to Katzman et al.

Regarding claims 2, 6 and 12, Carson teaches the circuit as discussed above regarding

claims 1, 7 and 9, however, may not specifically disclose generating response packets. Katzman

teaches a circuit similar to Carson wherein a plurality of functional modules (e.g., modules 33 in

FIGS. 1 and 2, and col. 3, line 45 – col. 49, line 68) are interconnected via a packet router (e.g.,

bus controller 37) with each functional module having packet handling circuitry (e.g., inter-

processor control 55) for generating and receiving packets conveyed by the packet router.

Katzman further teaches generating response packets (e.g., SND ACK in FIG. 7, see also

acknowledgement ready signal in col. 74, lines 57-61) wherein a bit distinguishes between a

request and a response (e.g., see FIG. 9 wherein SND REQ differs from SND ACK by a bit).

The teachings of Katzman provide for a modularized multiprocessor system wherein major

components can be removed or replaced without system interruption or modifications to other

hardware or software, thus improving flexibility and reducing operator cost. Therefore, at the

time of the invention it would have been obvious to one of ordinary skill in the art to apply the

teachings of Katzman to the circuit of Carson in order to improve flexibility and reduce operator

cost.

Regarding claim 11, Carson teaches a physical mode (e.g., see col. 5, line 60 – col. 6, line 6) wherein a unique 8-bit MPIC-ID selects a single destination (i.e., primitive access) or a broadcast to all MPICs (i.e., compound access).

7.   Claims 5, 8, 15, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carson in view of Katzman, further in view of U.S. Patent No. 5,704, 034 to Circello.

Regarding claims 5, 8 and 15, Carson in view of Katzman teaches the circuit according to claims 1 and 2 as discussed above, however, Carson in view of Katzman may not specifically disclose the request packets including a data object, the size of which is denoted by the operation qualifier. Circello teaches a circuit for initializing a data processing system which involves sending signals (e.g., processor status PST and data signals DDATA) from a module (e.g., 10 in FIG. 1) to a system (e.g., 7). The signals include a data object (e.g., DDATA) and the size of the data object is denoted by two bits of the PST (i.e., an operation qualifier). Particularly, when a data object is transferred (indicated by bits 3:2 equaling 10, see FIG. 10), the size of the data object is denoted by bits 1:0 (wherein 00, 01, 10, and 11 denote in binary the number of bytes which are to be transferred). In the event transfers of more than four bytes were desired, at the time of the invention it would have been obvious to one of ordinary skill in the art to use additional bits in the operation qualifier (e.g., three) to denote the size of the data object (e.g., DDATA) since it is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. Furthermore, applying the teachings of Circello to the system of Carson in view of Katzman would provide an improved system wherein an element

would advantageously be aware of the size of particular data transfers prior to transfer

completion. Thus, at the time of the invention it would have been obvious to one of ordinary

skill in the art to apply the teachings of Circello to the system of Carson in view of Katzman in

order to provide an improved system wherein an element would advantageously be aware of the

size of particular data transfers prior to transfer completion.

Regarding claims 18 and 20, Circello further teaches four PST bits denoting that the PST

(e.g., operation field) is user defined (see FIG. 10, when PST[3:0] equals 0011).

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Justin M Philpott whose telephone number is 703.305.7357. The

examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Huy D Vu can be reached on 703.308.6602. The fax phone numbers for the

organization where this application or proceeding is assigned are 703.872.9314 for regular

communications and 703.872.9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is 703.305.4750.

Justin M Philpott

Pmp

July 16, 2003